



## Granulate Ambrosia Beetle

*Xylosandrus crassiusculus* Motschulsky (Coleoptera: Curculionidae: Scolytinae)

### Introduction:

The granulate ambrosia beetle (GAB), formerly Asian ambrosia beetle, is an exotic invasive wood boring beetle from east Africa and southeast Asia thought to have arrived in the U.S. in infested wooden crating and shipping materials. First reported in 1974 in Charleston, SC, GAB has become a serious pest of woody ornamental, fruit and nut trees in the U.S.

### U.S. Distribution/Spread:

As of 2007, GAB have been reported in Hawaii and throughout the southeastern and Gulf coasts from the Carolinas to Texas, through Oklahoma and Arkansas, and into Tennessee, Virginia, Maryland, Delaware, Ohio, Indiana, and Oregon. GAB have spread through the U.S. naturally and by shipment of infested nursery stock, crating and packing materials, and raw wood products (rail ties, logs, lumber and firewood).

### Host Plants:

GAB attacks over 200 species of plants, primarily hardwoods including many common woody ornamental, fruit and nut trees, as well as some conifers. It is an aggressive species and attacks stressed, transplanted, freshly cut, and even apparently healthy trees. Trees with a diameter of 3" (7.6 cm) or less are preferred. Newly transplanted trees and seedlings are especially vulnerable.

### Biology and Damage:

It is unknown where GAB overwinter, but they are thought to overwinter as adults and to mate prior to adult female activity in early spring. In the South, adult females begin activity in March, when they leave the flightless males behind to fly to new host plants. Adult activity peaks in April, but remains at low levels throughout summer into fall. The life cycle averages 55 days, and there may be two or more generations a year.

Female GAB bore into twigs, branches, or trunks of susceptible hosts, excavate tunnels into the sapwood, and infect galleries with a symbiotic ambrosial fungus. The beetles and larvae feed on the ambrosial fungus, not on wood. Females lay their eggs in brood chambers bored deep into the heartwood. There are no individual egg niches, larval tunnels or pupal chambers. All life stages can be found together in the galleries during the summer and fall.

Newly hatched females mate in the galleries before emerging to begin a new cycle of colonization and reproduction.

### Identification:

- Females are 0.08-0.11" long (2-2.9 mm), and can fly.
- Males are smaller, ~ 0.06" long (1.5 mm), and flightless.
- Adults have a downward facing head completely hidden from the top view.
- The body is stout, "hunch-backed," and reddish-brown with brown to black forewings.
- The front of the head and lower back part of the wings are dull and grainy looking.
- Larvae are white, legless, "C" shaped, with a well developed tan head capsule. They are not easily distinguishable from the larvae of many other scolytid beetles.



Granulate Ambrosia Beetle adults. Natasha Wright, Florida Department of Agriculture and Consumer Services, Bugwood.org

### What to Look For:

Infestation usually occurs on the main trunk close to the ground, but can be found throughout the tree in heavy infestations. Trees are usually attacked by large numbers of beetles and can decline rapidly, progressing quickly through wilting, dieback, and then death. Tree death occurs more commonly from attacks during the leafing-out stage.

**Symptoms of GAB infestation include:**

- Wilted foliage.
- Toothpick-like spikes of frass (compacted sawdust), up to 1.5” long (38 mm), sticking out of the tree trunk. Spikes break off easily and may not always be seen.



Frass spikes on tree trunk. R. F. Mizell, University of Florida

- Heavy sap bleeding on the trunks of hosts with high resin levels, such as *Prunus*.

- Numerous, perfectly round, pencil-lead size holes (~ 0.08” or 2 mm) can be seen if frass spikes and/or gummosis are missing.
- Fungal staining from ambrosial fungi is often seen in wood next to GAB galleries.
- Splitting open a section of trunk or branch may reveal galleries in the sapwood.



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Damage: galleries and fungal staining in sapwood. G. Keith Douce, University of Georgia, Bugwood.org

- Adult GAB are rarely seen and difficult to identify; specimens should be submitted to a trained entomologist for identification.

**How to Report a Possible Sighting/Infestation**

**In Maryland:**

University of Maryland Cooperative Extension Exotic Pest Threats Website:

<http://hgic.umd.edu/faq/sendAQuestion.cfm>

Maryland Department of Agriculture: call 410-841-5920 to report suspect pests; visit [http://www.mda.state.md.us/plants-pests/invasive\\_species.php](http://www.mda.state.md.us/plants-pests/invasive_species.php) for information.

Nationally: USDA-Animal and Plant Health Inspection Service (APHIS)

[http://www.aphis.usda.gov/services/report\\_pest\\_disease/report\\_pest\\_disease.shtml](http://www.aphis.usda.gov/services/report_pest_disease/report_pest_disease.shtml)

**Adult GAB  
Actual Size:**



**Where to Get More Information:**

UMD Cooperative Extension Exotic Pest Threats Website: <http://www.PestThreats.umd.edu/index.cfm>

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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, University of Maryland, College Park, and local governments. Cheng-i Wei, Director of Maryland Cooperative Extension, University of Maryland.

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